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CHIROPRACTIC (GENERAL)

The Big Picture of Research: The Limitations and Politics of Randomized Clinical Trials

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I have sometimes heard reports of doctors who told their patients that there is no scientific evidence in support of ACCTs (alternative and complementary cancer therapies). Such claims are misleading and, in my opinion, ethically questionable because they use the authority of the clinician to discourage patients from exploring the literature on their own, learning about possibly lifesaving alternatives, and making decisions based on their own personal beliefs regarding risk taking. A better way to formulate the claim is that the clinical evidence is ambiguous, better for some therapies than others, and in almost all cases incomplete because the necessary research has not been funded. When one considers the much larger literatures not covered here - the scientific evidence from preclinical studies (biochemical assays, in vitro studies and animal studies) and the literature on prevention for many of the same substances - the picture looks much more promising for ACCTs.[1]

Sound familiar? If you substitute the word "chiropractic" for "ACCT" you will have precisely identified and described with astounding insight what has prevented some individuals from more readily accepting the already published documentation which supports chiropractic theory and practice.

In his insightful and erudite discussion of ACCTs from both scientific and political points of view, David Hess (a medical anthropologist and professor of science and technology studies at Rensselaer Polytechnic Institute) provides a cornucopia of information which, among other topics, chillingly depicts how vital clinical information can become corrupted in entering and exiting the randomized clinical trial. While there is no doubt that randomized clinical trials occupy a very important place in the validation of chiropractic or any other form of health care, they are by no means entitled to sole billing for a variety of reasons:

1. We know that it is unrealistic to expect that every facet and variation of health care intervention can be supported by a costly and time-consuming randomized clinical trial.

2. Randomized clinical trials may have excellent internal validity, but they have poor external validity, in that they are difficult to generalize.

3. As I have argued in many previous issues of *Dynamic Chiropractic,*[2-4] the presence of questionable sham techniques does not necessarily qualify as valid placebos, raising the very provocative possibility that a shabbily designed RCT is not as worthy as a well-crafted cohort study or case series.

4. Our understanding of such broad and far-reaching concepts in health care as the development of polio vaccines, for example, did not originate with clinical trials using iron

lungs, but with research at a far more basic level.

5. Our widespread use of most surgical techniques and the means used to treat glaucoma are not supported by any clinical trials but rather by case studies.

And so it is with chiropractic. The emphatic endorsement 20 years ago by the New Zealand Commission of Inquiry of chiropractic intervention for a variety of conditions extending beyond low-back pain was accomplished virtually without the support of a single randomized clinical trial. (The more robust RCTs did not appear in the peer-reviewed journals until well into the 1980s.) Rather, there were a multitude of case studies to consider, at least a couple of which were compelling enough to convince those judging the hearings to approach the question of chiropractic effectiveness with an open mind rather than dismissing it categorically. These issues were only recently reviewed with great eloquence at the World Federation of Chiropractic Congress in Auckland, New Zealand.[5]

There is no doubt that the rigor of parallel treatments in RCTs occupies an important place in the research portfolio. On the other hand, one is less inclined to worship RCTs at the mere mention of the term after reading Hess's book, which extensively details how changes in design protocols were introduced at such prestigious institutions as the Memorial Sloan-Kettering Cancer Center or the Mayo Clinic above the objections of the original designers of such ACCT therapies as vitamin C, hydrazine sulfate, laetrile, and antineoplastons.

As a case in point, Hess depicts how a presumably agreed-upon RCT of the antineoplaston therapy of Stanislaw Burzynski became corrupted when the sponsoring institution (the National Cancer Institute) passed his protocol on to the Mayo Clinic and Memorial Sloan-Kettering Institute, which promptly admitted patients with larger and more advanced tumors (and who were presumably more refractory to treatment) than originally conceived. When Burzynski asked that the original patient criteria (smaller tumors) be adhered to, or that he be allowed to design a new protocol for the patients with advanced tumors, the Mayo Clinic and Sloan-Kettering stopped the trials with no further action or comment.

It gets worse. According to Robert Houston, a journalist interviewed by the author, Burzynski had originally approached the National Cancer Institute with data indicating that 40% of his patients using antineoplaston therapy were showing complete remissions, while the rate of cancer remission in the phase I trials normally sponsored by the National ancer Institute for "more established" therapies is 2%, with the rate of complete remission being 0.16%![6]

As Houston puts it: "The ratio between 40% and 1/6 of 1% is the same ratio as the height of the Empire State Building to the height of a child standing on the street. That could be the degree of differential efficacy between Burzynski's therapy and NCI's normal experimental treatments." Within a two-page span, Houston depicts how the NCI stripped the identity of the putative treatment away from Burzynski, who (perhaps not so) incidentally faces a 300-year jail sentence for implementing his therapies in his home state (Texas).

This is indeed a somber story of academic science running amok. Indeed, the traditional regulatory hurdle for introducing new medications into the market requires $200 million and 10 years of research, which immediately restricts new therapies to patentable products financed by well-capitalized private corporations.
It leads Hess to resurrect a quip about the "gold standard" of RCTs, claiming that the label is well-chosen because "it takes a lot of gold to set the standard."[1]

What can we learn from this and many other morality tales described in Hess's book? To begin, one can take great encouragement from Hess's assertions that the public is by no means an amorphous mass of illiterates; rather, it is capable of becoming quite informed in medical and other scientific knowledge when the need arises. Secondly, it underscores what has been a consistent mission at FCER to support a multiplicity of research designs in its portfolio, including basic research, cohort studies, and even case series, in addition to the highly revered randomized clinical trial. It is only with this balanced approach that we may hope to make significant additions to the knowledge base of chiropractic or, for that matter, any health care intervention.

References

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